

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES



In the application of

Tatsuhiko SHIBUYA et al.

Serial No. 09/302,471

Filed April 30, 1999

: Confirmation No. 6935

: Docket No. 00774/98-129

: Group Art Unit 1755

: Examiner D. Brunsman

SILICA-BASED COATING FILM  
ON SUBSTRATE AND COATING  
SOLUTION THEREFOR

THE COMMISSIONER IS AUTHORIZED  
TO CHARGE ANY DEFICIENCY IN THE  
FEES FOR THIS PAPER TO DEPOSIT  
ACCOUNT NO. 23-0975

**REPLY BRIEF**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This is in reply to the Examiner's Answer dated April 15, 2003.

Claims 7 and 10-15 stand finally rejected under 35 U.S.C. 102(b) as being anticipated by Takei et al.

Claims 8 and 9 stand finally rejected under 35 U.S.C. 103(a) as being unpatentable over Takei et al. as applied above, and further in view of Tomikawa et al.

These rejections are again respectfully traversed.

Present claims 7-12 are directed to a method for the preparation of a coating solution and claims 13-15 are directed to a method for formation of silica-based coating film on the surface of the substrate with a specified coating solution to form a coating layer followed by drying the coating layer to form a dried coating layer which is then subjected to baking.

Turning to the numbered points set forth in paragraph (11) of the Examiner's Answer:

1) The Examiner's Answer alleges that Takei et al. teaches coating. In this regard, it is alleged that the teaching of "overlying batches of sol" implies coating of a dried batch of sol with a

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fresh sol. This, however, is based on a misinterpretation of what is disclosed in [0002] of the reference.

What Takei is describing is the preparation of a synthetic quartz glass block overlaying batches of sol, which is, to the art skilled, a very different procedure from coating on a substrate.

"Pouring" in Takei and "coating" of the present invention are very different in that the product of Takei in [0002] is a block of silica glass prepared by pouring layers of sol, drying each one before the next is poured and sintering in contrast to a silica-based coating film coated on the surface of a substrate as called for by claims 13-15.

Nor can the various poured layers of Takei be considered a coating solution since no coating processes are disclosed or suggested.

2) The Examiner's Answer alleges that, since Takei et al. employ a partial polycondensation product, the term "partial" indicates that TMOS monomer is still present. This allegation is based on the groundless assumption disregarding the consecutive balance of the hydrolysis reaction of TMOS and the condensation reaction of the silanolic compound as the hydrolyzate. It is well known that, when the hydrolysis-condensation reaction of TMOS is carried out in the presence of an acid catalyst, there would be left almost no unhydrolyzed TMOS because of the rapid hydrolysis reaction of TMOS as compared with the condensation reaction of the hydrolyzate. The term of "a partial polycondensation product" is understood to mean that the catalyst is acidic leaving no unhydrolyzed TMOS. Accordingly, "a partial polycondensation product" in Takei et al. doesn't disclose or suggest the "polyalkoxy silane" of the present invention.

4) The Examiner's Answer alleges that the prior art teaches replacement of the alcoholic solvent with an aprotic polar solvent such as DMF. The logic of this allegation appears to be that vaporization of an alcoholic solvent from a mixture of an alcohol and DMF is a type of solvent replacement. This position is a very stretched interpretation of the term "replace" which is defined in a dictionary as "to put something new in the place of". In Takei et al., there is nothing newly added to the alcohol-DMF mixture to replace the alcohol. DMF is not newly added in the place of the alcohol.

For the foregoing reasons, taken with those in Appellants' Brief, reversal of the Final Rejection is respectfully requested.

This Reply Brief is submitted in triplicate.

Respectfully submitted,

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